

## REMARKS

The applicants appreciate the Examiner's thorough examination of the application and request reexamination and reconsideration of the application in view of the preceding amendments and the following remarks.

As a preliminary matter, the applicants have amended claim 1 to advance prosecution. Claim 1 as amended recites a radome comprising flexible composite fabric material including polyester-polyarylate fibers in a flexible resin matrix material structured to increase the radome strength and reduce radio frequency transmission losses through the radome. In addition to the reasons below, claim 1 is in condition for allowance because the cited references do not teach a radome made of a material structured to both increase the radome strength and reduce radio frequency transmission losses through the radome. The structure of the radome of applicants' claim 1 achieves a balance between radome strength, thickness and transmission qualities that was not previously known.

As a further preliminary matter, if the Examiner is not persuaded the applicants respectfully request that the Examiner articulate specifically where in the cited references each of the applicants claims are taught or suggested so the applicants may more effectively respond.

In this Final Office Action the Examiner has rejected claims 1-34, and has maintained the previous rejections of claims 1-33. Claim 34 was only newly added in the applicants' last Response. The Examiner's previous rejections were based on 35 U.S.C. §112, 2<sup>nd</sup> paragraph, and on an obviousness-type double patenting over U.S. Pat. App. No. 10/621,155 and U.S. Pat. No. 6,911,955. The Examiner also rejected claims as obvious over the combination of U.S. Pat. No. 4,506,269 to *Greene* and U.S. Pat. No. 5,360,503 to *Coffy*.

## **I. THE EXAMINER'S CLAIM INTERPRETATION IS CONTRARY TO LAW**

### **A. Pending Claims Are To Be Given The Broadest Reasonable Interpretation Consistent With The Interpretation That Those Skilled In The Art Would Reach**

In the Response to Arguments section of the Final Office Action, the Examiner states that “[t]he Examiner has given the claim limitations their *broadest possible meaning* and searched them accordingly” (with emphasis added).

The Examiner's analysis is contrary to law. Claims are not to be given their “broadest *possible meaning*”.

The law makes clear that in the interpretation of claims, reasonableness and common sense prevail.

The proper standard for analysis of claims is the standard set by law, namely that pending claims are to be given their *broadest reasonable* interpretation, and this *broadest reasonable interpretation* is to be *consistent with the interpretation that those skilled in the art would reach*. See MPEP §2111, citing In re Cortwright, 165 F.3d 1353, 1359, 49 USPQ 2d 1464, 1468 (Fed. Cir. 1999).

According to the Examiner “even a steel beam has some flexibility” and “virtually anything will flex, if enough pressure is applied to it”. The Examiner's conclusions -- as well as the rejections -- are the result of the improper starting point for the analysis. While one skilled in the art would recognize the *possibility* that a rigid radome may possibly “flex” if hit by an artillery shell, a *reasonable* interpretation would not include such a *possibility* as a starting point of interpretation of a rigid radome such as the radome claimed in U.S. Pat. App. No. 10/621,511. See also e.g. the Declaration of Marvin I. Fredberg that one skilled in art would not reasonably

interpret a claim to a rigid panel radome to be an obvious variant of a flexible fabric radome because of the *possibility* that under extreme external circumstances a rigid radome (like a steel beam) may possess some degree of “flexibility”.

Thus is clear that possibilities are not the standard for claim analysis – reasonable interpretation of claims is the proper analysis, and a reasonable interpretation of the applicants’ claims does not render them obvious as stated by the Examiner.

**B. The Words Of Claims Must Be Given Their Plain Meaning  
Unless The Applicant Has Provided A Clear Definition In The Specification**

The Examiner also states “[p]erhaps Applicant should claim a degree or unit of flexibility, or show that their invention although having the same parts is actually different or distinguishable from that known in the prior art”.

The Declaration of Marvin I. Fredberg sets forth a comparison of the two types of radome (“flexible fabric”/“rigid panel”) at issue, but only as evidence of the knowledge of those skilled in the art and the plain meaning of those words. The Examiner’s position that such parameters should be in the claims is not the law. The words of the claims must be given their plain meaning *unless* the applicant has provided a clear definition in the specification. See MPEP 2111.01 I citing In re Zletz, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989). The plain meaning of a flexible fabric is not the same as a rigid panel, and the applicant has not given any definition in the specification that flexible is to be attributed anything other than its plain meaning to those skilled in the art.

As set forth in the Declaration of Marvin I. Fredberg, one skilled in the radome art would readily understand the plain meaning and difference between *a flexible fabric* radome and a *rigid*

*panel* radome. Even though it is possible a rigid panel radome could possibly “flex” if hit by a bomb or is subjected to other such outside forces, one skilled in the art would reasonably know and understand the distinct difference between and plain meaning of a flexible fabric radome (typically with known flexibility due to very low to no compressive and flexural modulus) and a rigid panel radome (typically with known rigid characteristics due to significant tensile, compressive and flexural modulus material characteristics), without the necessity of referring to any such specific degrees or units of “flexibility”.

In addition, U.S. Pat. App. No. 10/621,155 claims a radome comprising at least one rigid panel ... in a rigid resin matrix. By any reasonable interpretation, such a radome does not have the “same parts” as the claimed radome comprising flexible composite fabric material in a flexible resin matrix. Likewise, the instant claimed radome comprising a flexible composite fabric material including polyester-polyarylate fibers in a flexible resin matrix material does not have the “same parts” as the radome recited in claim 80 of U.S. Pat. No. 6,911,955 which does not include polyarylate fibers, but which does include:

a joint between adjacent first and second sections wherein: the first section has an edge with a first ply thereof extending outward from a second ply; the second adjacent section has an edge with a first ply thereof offset inward from a second ply; and the first ply of the first section is disposed on the second ply of the second section.

The applicants submit that it is this erroneous starting point for the claims analysis which leads to the Examiner’s rejections that the claimed “flexible ... fabric material including ... a flexible resin matrix” is unclear, or is obvious over a “rigid panel including ... a rigid resin matrix” as claimed in U.S. Pat. App. No. 10/621,155, or is obvious over a radome having a specifically claimed joint or seam as claimed in U.S. Pat. No. 6,911,955.

### **C. Pending Claims Must Be Given Their Broadest Reasonable Interpretation Consistent With The Specification**

Additionally, MPEP §2111 requires that during patent examination the pending claims must be given their broadest *reasonable* interpretation *consistent with the specification*.

The specification of the subject application discloses that the subject invention includes polyester-polyarylate fibers as the structural reinforcement in the *claimed flexible* composite *fabric* material of the resulting radome and that, for example, the polyester-polyarylate fibers can be readily woven into *fabric*, which may be cloth. See e.g. the applicants' specification at page 8, lines 18-22. In fact, claim 2 recites that the polyester-polyarylate fibers are *woven into fabric*. Claim 3 recites that the polyester-polyarylate fibers are *knitted into fabric*. Claim 10 recites that the polyester-polyarylate fibers *form yarns*. New claim 35 recites a radome comprising a flexible composite fabric material including polyester-polyarylate fibers forming *yarns woven or knitted into fabric* in a flexible resin matrix material, and an outer hydrophobic exterior covering bonded to the flexible composite fabric material.

The specification of the subject patent application also gives examples of flexible radomes such as air-supported flexible fabric radomes and stretched membrane radomes, as known in the art, although the applicants' claimed invention is not limited to these specific embodiments. See the applicant's specification at page 6, lines 18-19.

Accordingly, it is clear that the applicants' claims are consistent with the specification and are not unclear.

### **D. Summary**

In summary, a proper reasonable interpretation of the applicants' claims in accordance

with the law is consistent with the interpretation of those skilled in the art, the plain meaning of the words, and the specification.

Accordingly, giving the claims a reasonable interpretation in accordance with law -- not any possible interpretation -- the applicant's claimed invention is not unclear and is not obvious over the cited references, as discussed above and in further detail below.

## **II. THE EXAMINER'S 112, 2<sup>ND</sup> PARAGRAPH REJECTION AND THE EXAMINER'S REJECTIONS BASED ON U.S. PAT. APP. NO. 10/621,155 AND U.S. PAT. NO. 6,911,955**

In the Response to Arguments section of the Final Office Action, the Examiner states that the reason for rejection based on indefiniteness was "because the terms flexible/flexibility, rigidity etc are considered to be relative terms, particularly since virtually anything will flex, if enough pressure is applied to it".

Virtually all terms – even those that are the opposite of one another – are in some sense "relative" to one another, but the question of degree does not come into play if the question is only regarding possibilities and/or metaphysical distinctions. In this case the claim terms are consistent with the interpretation of those skilled in the art, the specification, and the plain meaning of the claims' terms are clear. To those of ordinary skill in the radome art reasonably interpreting the applicants' claims, the difference between flexible fabric radomes and rigid panel radomes is well known. See also the discussion above and the Declaration of Marvin I. Fredberg.

With respect to the rejection over U.S. Pat. App. Ser. No. 10/621,155, independent claims 1, 17, 18, 19, 34, and 35 of the subject invention include the recitation of a radome comprising flexible composite fabric material including polyester-polyarylate fibers in a flexible resin

matrix. In sharp contrast, claim 1 of Ser. No. 10/621,155 recites a radome or feedome comprising at least one rigid panel including composite material having polyester-polyarylate fibers in a rigid resin matrix material. There is a clear distinction between a flexible fabric in a flexible matrix and a rigid panel in a rigid matrix given the plain meaning of the words and the understanding of those of ordinary skill in the art. See the Declaration of Marvin I. Fredberg and also the discussion above.

Accordingly, Ser. No. 10/621,155 teaches away from the applicants' claimed radome, and the applicants' claimed invention is not obvious over Ser. No. 10/621,155. The applicants' invention cannot be subject to an obvious-type double patenting rejection because the analysis employed in such a rejection is the same as an obviousness analysis over prior art. See e.g. MPEP §804 II.B.1., quoting In re Braithwaite, 379 F.2d 594, 154 USPQ 29 (CCPA 1967) and In re Braat, 937 F.2d 589, 19 USPQ2d 1289 (Fed. Cir. 1991):

A double patenting rejection of the obviousness-type is "analogous to [a failure to meet] the non-obvious requirement of 35 U.S.C. 103" except that the patent principally underlying the double patenting rejection is not considered prior art ...

Therefore, any analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. 103 obviousness determination.

Under 103 analysis, teaching away is an important indicium of non-obviousness. See e.g. W.L. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 220 USPQ 303, 311 (Fed. Cir. 1983).

Accordingly, under proper analysis the applicant's claimed invention is not obvious over U.S. Pat. App. No. 10/621,155.

With respect to the rejection based on U.S. Pat. No. 6,911,955, claim 1 of the subject invention recites a radome comprising flexible composite fabric material including polyester-

polyarylate fibers in a flexible resin matrix. In sharp contrast, claim 80 of U.S. Pat. No. 6,911,955 does not teach or suggest polyester-polyarylate fibers at all. In further contrast to the applicants' claimed invention, claim 80 of U.S. Pat. No. 6,911,955 recites a novel and non-obvious joint as discussed above.

The Examiner has provided no evidence to support the conclusion that these the applicant's claims are obvious over U.S. Pat. No. 6,911,955. It is the applicant's claims that measure and define the invention. Proper analysis reveals, among other things, the lack of any teaching or suggestion of polyester-polyarylate fibers in U.S. Pat. No. 6,911,955. In its place, U.S. Pat. No. 6,911,955 teaches a novel joint or seam. Accordingly, the applicants' claims are not obvious over the claims of U.S. Pat. No. 6,911,955.

### **III. THE EXAMINER'S REJECTION BASED ON THE COMBINATION OF U.S. PAT. NO. 4,506,269 TO *GREENE* IN VIEW OF U.S. PAT. NO. 5,360,503 TO *COFFY***

The Examiner states that the rejections are not based on an "idea" but on the claims "limitations". However, the Examiner has emphasized the difference between "flexible" and "rigid".

In the Final Office Action the Examiner states that applicant's arguments cannot take the place of evidence, and suggests that the applicant provide data in a Declaration/Affidavit that indicates the combination of *Greene* and *Coffy* do not teach flexible radomes but a rigid one "because the prior art fails to specifically state whether or not their structures are flexible or rigid".

First, claim 1 as amended recites a radome comprising flexible composite fabric material including polyester-polyarylate fibers in a flexible resin matrix material structured to increase the



radome strength and reduce radio frequency transmission losses through the radome. In addition to other reasons herein, claim 1 is in condition for allowance because the cited references do not teach such a radome structured as claimed by the applicants to include elements which both increase the radome strength and reduce radio frequency transmission losses through the radome.

On the subject of “flexible” and “rigid” the applicants submit the Declaration of Marvin I. Fredberg which includes statements regarding the difference between a radome comprising a flexible composite fabric material as claimed, and a radome including a C-sandwich wall as taught by *Greene*, as understood by one skilled in the art. Also, the applicants’ note that in one example, *Greene* teaches that in a preferred embodiment:

Dielectric cores 24 and 26 and center skin 22 of radome wall 13 are *machined* from a *solid polycarbonate sheet*. Grooves are *sawed* in two directions across the sides, leaving square posts 20 ...

Even apart from the applicants’ Declaration statements, it is clear that the members of *Greene*’s C-sandwich wall -- which are machined and sawed from a solid polycarbonate sheet -- do not suggest a flexible fabric material as claimed by the applicants. The applicants submit that arguments can and often do overcome rejections, especially when the evidence contrary to an applicant’s claims is contained in the cited references themselves as it is here.

*Greene* teaches away from the applicants’ claimed invention by teaching a C-sandwich radome wall composed of members which are machined and sawed from a solid polycarbonate sheet. *Greene* also teaches away from using any fibers at all for increasing the strength of the radome or for reducing transmission losses, in contrast to the applicants claimed invention. Instead of fibers as claimed by the applicant, *Greene* teaches a machined core such that the core posts provide support. *Greene* teaches away from using polyester-polyarylate fibers for more

ready transmission of RF waves. Instead, *Greene* teaches varying the percentage of core to air space for optimum dielectric value in the radar range. It is known that radome thickness, as well as material, effects both strength and transmission ability. A thick C-sandwich wall would provide strength, but there would be an associated loss of RF transmission. In contrast, the applicants' claimed invention not only provides for different uses for the radome, but the polyester-polyarylate fibers are both a source of structural reinforcement and increased RF transmission. The sharp contrast between *Greene* and the applicants' claimed invention is therefore clear. See also the Declaration of Marvin I. Fredberg and applicants' previous Responses for additional details regarding these issues and contrasts.

In summary, *Greene* teaches away from the applicants' claimed invention, and teaching away is an important indicium of non-obviousness. See W.L. Gore, *infra*.

*Coffy* simply teaches a semi-finished product, not a radome, and certainly not a radome structured to increase strength and reduce RF transmission losses.

Moreover, *Greene* and *Coffy* are not properly combinable as noted in detail previous Responses by the applicants. *Greene* teaches a laminated thermoplastic radome. *Coffy* does not teach or suggest use of its semi-finished product in a radome at all. *Greene* teaches that the main radome structural support is the machined C-sandwich wall, and no fibers. *Coffy* teaches a semi-finished product with fibers. The only suggestion to combine these cited references, if any, comes from the applicants' claimed invention. This is not a proper source of motivation, however, because it uses impermissible hindsight. See e.g. In re Dow Chemical Company, 837 F.2d 469, 473, 5 USPQ 2d 1529, 1532 (Fed. Cir. 1989) (there must be a reason or suggestion in the art for selecting the procedure used, *other* than the knowledge learned from the applicants' disclosure).

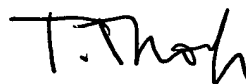
#### IV. CONCLUSION

Accordingly, the applicants' claims 1-34 are clearly in condition for allowance. New claim 35 recites a radome comprising a flexible composite fabric material including polyester-polyarylate fibers forming yarns woven or knitted into fabric in a flexible resin matrix material and an outer hydrophobic exterior covering bonded to the flexible composite fabric material. Therefore, for the reasons above and because claim 35 includes the combination of additional claimed elements and such combination is not taught by the cited references, claim 35 is also in condition for allowance.

Each of the Examiner's rejections has been addressed or traversed. Accordingly, it is respectfully submitted that claims 1-35 are in condition for allowance. Early and favorable action is respectfully requested.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned or his associates, collect in Waltham, Massachusetts at (781) 890-5678.

Respectfully submitted,



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